

REMARKS

Review and reconsideration of the application in view of Applicants' amendments and remarks are respectfully requested. Applicants herein amend Claims 1 and 7 for clarity, and such amendments are supported in the specification and by the claims as originally filed. In particular, the amendments to claim 1 are supported by the specification at least at page 3, line 30, - page 4, line 3, and page 21, line 9, - page 22, line 12. Amendments to claim 7 are supported at least at page 8, lines 20-25.

Applicants thank the Examiner for the indicated withdrawal of the previously asserted rejections under 35 USC §112, second paragraph, and 35 USC §102(b).

Applicants submitted an Information Disclosure Statement and Form PTO-1449 on January 7, 2004. Consideration and acknowledgement of the references disclosed therein is respectfully requested. For the Examiner's convenience, a copy of the Form PTO-1449 is attached.

Claim 7 has been rejected under 35 USC § 112, second paragraph. Claim 7 is herein amended for clarity to replace “/” with “or.” Withdrawal of the rejection is respectfully requested.

Claims 1-18 have been rejected under 35 USC § 103(a) over Walt et al. (WO 00/16101), herein referred to as “Walt et al.,” in view of Seul et al. (US 2003/0138842 A1). Claim 19 has been rejected under 35 USC § 103(a) over Walt et al. in view of Seul et al. as applied to Claim 1, and further in view of Walt et al. (US 2002/0172716 A1), herein referred to as “Walt (b).” Claim 20 has been rejected under 35 USC § 103(a) over Walt et al. in view of Seul et al. as applied to Claim 1, and further in view of Chang et al (US 4,873,102). Applicants traverse each of the above rejections for at least the following reasons.

It is asserted in the Office Action that Walt et al. discloses a method of identifying nucleic acid samples comprising providing a microarray including a substrate coated with a composition of microspheres dispersed in a fluid containing a precursor to a gelling agent, wherein the microspheres are immobilized randomly on the substrate. The Office Action states on page 3

“ . . . the randomly mixed microspheres within a solution are dripped onto the substrate wherein upon evaporation of the solution, the solution holds them in place and wherein the solution comprises solution such as Nafion, polyacrylamide or polyHEMA, page 22, lines 9-22.”

Applicants note that the reference to a “precursor to a gelling agent” has been removed from all claims, thereby making this argument by the Patent Office moot. Further, Walt et al. does not disclose or suggest a “gelling agent.” As admitted in the Office Action, Walt et al. discloses at page 22, lines 9-22, that Nafion, or another recited polymer, is dripped over the microspheres to form a film over the microspheres after they are distributed on the substrate by solution coating. Neither Nafion nor the fluid in which the microspheres are coated are gelling agents because both require evaporation after coating on or with the microspheres.

It is further asserted in the Office Action at page 4 that Walt et al. “requires permeability of the gelling agent,” referencing page 22, lines 20-22, of Walt et al. It is asserted in the Office Action that this “suggests that a portion of microsphere must be exposed,” although the Office Action goes on to admit that Walt et al. does not teach a portion of the microsphere is exposed. Applicants respectfully assert permeability of a gelling agent and exposure of the microsphere are separate issues. At page 22, lines 15-22, Walt et al. is discussing fixing microspheres in place using a film such that the microspheres can be used for pH indication. It is stated at lines 17-18 that: “[t]he resulting array of fixed microspheres retains its pH sensitivity due to the permeability of the sulfonated Nafion to hydrogen ions.” The protective film that holds the microspheres in place must be permeable to ions in order for the array to be pH sensitive. Permeability to ions can occur without any exposure of the microspheres, as known to one of ordinary skill in the art. As claimed by Applicants, an exposed portion of the microsphere refers to a section of the microsphere having no overcoating of gelling agent. *See*, for example, page 8, lines 8-11, and page 22, lines 10-12. Walt et al. clearly teaches a coating over the microspheres, and does not disclose or suggest exposing a portion of the microspheres by enzymatically removing gelling agent from the microspheres, as set forth in Applicants’ claim 1.

Thus, Walt et al. does not disclose or suggest at least use of a gelling agent, a microsphere with an exposed portion, or enzymatic removal of a

portion of the gelling agent from the microspheres. Seul et al. does not cure the deficiencies of Walt et al. It is asserted in the Office Action, page 4, that Seul et al. "teaches a similar method (¶ 18) wherein the microspheres are exposed above the gelatin coating thereby permitting a binding reaction between the binding agent on the microsphere and a target in solution (page 4, lines 3-6)." Applicants presume "similar method" refers to Walt et al. However, as described in Seul et al., the particles are exposed by removal of an electrode covering the particles embedded in a polymer. *See*, for example, page 4, lines 1-3. Elsewhere in Seul et al., for example, page 4, lines 6-9, it is merely stated that "the polymer-particle composite is exposed to a target analyte" while between two electrodes. From further reading and inspection of the drawings of Seul et al., it is apparent "exposure" means placing the polymer-particle composite in contact with the target analyte. In contrast, the claimed invention requires exposure of a portion of the microspheres through enzymatic removal of the gelling agent. This is not disclosed or suggested by Seul et al.

Neither Walt et al. nor Seul et al. disclose or suggest at least the step of enzymatically removing gelling agent to expose a portion of the microspheres, as claimed in independent claim 1. Neither Walt (b) nor Chang et al. overcome the deficiencies of Walt et al. and Seul et al. Claims 2-20 ultimately depend from claim 1, and the subject matter thereof is not disclosed or suggested by the applied references for at least the same reasons. Reconsideration and withdrawal of all rejections of claims 1-20 under 35 USC §103(a) are in order, and are respectfully requested.

Claims 21-25 have been rejected under 35 USC § 103(a) over Walt et al. (WO 00/16101) in view of Porter et al. (US 6,146,899). For at least the following reasons, Applicants traverse the rejection.

Walt et al. teaches a method of identifying nucleic acid samples comprising providing a microarray including a substrate coated with a composition of microspheres dispersed in a fluid containing a precursor to a gelling agent, wherein the fluid is evaporated and a solution is dripped over the microspheres to form an immobilizing film. As taught in Walt et al., the microspheres can be randomly placed or patterned on a substrate.

Porter et al. teaches patterned immobilization of rabbit IgG on a patterned surface for use as a height referencing biochemical cassette. The Office Action indicates Porter et al. is referenced for its teaching of bright field illumination (*see* page 9 of Office Action), however a reference must be considered for all it teaches. Porter et al. requires patterning in order to be effective.

Combining Walt et al. with Porter et al., one skilled in the art would pattern the microspheres on a substrate as taught in Porter et al. and Walt et al. There would be no motivation to provide randomly immobilized microspheres, as set forth in claim 21 of Applicants, because both references teach the importance of patterning for ease of identification of targets on imaging.

For at least the above reasons, reconsideration and withdrawal of the rejection of claims 21-25 under 35 USC §103(a) over Walt et al. in view of Porter et al. is in order and respectfully requested.

For at least the reasons set forth above, Applicants submit all of Claims 1-25 are in condition for allowance. Prompt and favorable action in the form of a Notice of Allowance is respectfully requested.

Should the Examiner require anything further, or have any questions, the Examiner is asked to contact Applicants' undersigned representative.

Respectfully submitted,



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